Sokkia SDR33 Job Creation

1. Turn on Sokkia **<I/O Clear>**
2. Press **<OK>** to get to the start up screen. If any other screen appears press **<I/O Clear>** until startup screen appears.
3. Enter the <u>Functions</u> menu by pressing **<F1>**
4. Highlight <u>Job</u> by using <? and ?>
5. Press <**Enter**> or **<OK>**
    The Select Job screen is displayed. Typing the first letter of a menu choice will highlight that entry. If no jobs exist, the Sokkia will take you to the New Job screen (skip next step).
6. Create a new job <**F1**>
7. This displays the New Job screen
8. On the <u>Job</u> line, <**NO TEXT**> is highlighted. Type in a job name using the keyboard
    SF = **1**
    Point ID = **Numeric**
    Record Elevation = **YES**
    All other options = **NO**
9. Press <**Enter**> or **<OK>**
10. A note screen appears. Type in any notes you want at this point.
11. Press <**Enter**> or **<OK>**
12. Enter the <u>Survey</u> menu by pressing **<F2>**
13. Highlight <u>Keyboard Input</u> by using <? and ?> or **<K>**
14. Press <**Enter**> or **<OK>**
15. Highlight <u>Key in Coords</u> by using <? and ?> or **<K>**
16. Press <**Enter**> or **<OK>**
17. This displays the <u>Key in Coords</u> screen. DO NOT use <**OK**> on this screen until the end. Always use <**Enter**> to move between fields. Set the following:
    Pt = **100**
    N = <**Null**> (press <Enter> to leave as-is)
    E = <**Null**>
    El = **100.0**
    Cd = **TBM**   (this is your description field and is what will show in the drawing)
    Press **<Enter>**
18. Back out to <u>Survey</u> menu by pressing **<I/O Clear>** and **<I/O Clear>**
19. Highlight <u>Topography</u> by using <? and ?> or <**T**>
20. Press <**Enter**> or **<OK>**
21. The Station Coordinate Screen is displayed. Always use <**Enter**> to move between fields. Set the following:
    Stn = **1**
    N = **5000**
    E = **5000**
    El = <**Null**>
    Theo ht = **???** Measure the height of instrument and enter it
    Cd = **Hub** or **Stn**   Press **<Enter>** when done
22. The <u>Confirm orientation</u> screen appears. Type in the <u>Bs pt</u> = **100**

This tells the data collector that you are setup on point 1 (the point you entered and are back sighting point 100).

23. Press <**Enter**>
24. Select **Key in Azimuth** from the list that appears and press **<Enter>**
25. Turn the instrument to magnetic North and set the azimuth to 0.0000° on the instrument.

26. Turn to TBM and site prism (point 100)
27. Read the angle from instrument and type into Azimuth line
28. The Take BS Reading screen appears. Double check your site on the prism and then press the <**Blue Key>** on the bottom right of the SDR33.
29. You are prompted for the Prism height. Type in the height and press <**Enter**>
30. Press <**OK**> and the data collector will accept last shot. The Take Reading screen appears and confirms Station point and back sight point.
31. You are now setup to take side shots. Site the prism on the next shot, press the <**Blue Key**>, and enter a description in the Cd field. Accept the shot by pressing <**OK**> or by pressing the <**Blue Key**> again.

Sokkia SDR33 – Turning Points

1. Right after setting up the instrument and taking the back sight, turn and shoot the next Stn/Hub. Add the following information:
    Pt = **2**
    Cd = **Hub** or **Stn**
    Press **<Enter>** when done
2. Take the remaining shots for the first setup (Taking a shot on the next station can be done at anytime during the survey, but taking it as soon as possible after setup will reduce error)
3. When you are ready to move, turn off data collector and total station and move to new station.

4. Setup over point 2
5. Turn on data collector
6. Press <**I/O Clear**> until <u>Survey</u> menu appears
7. Highlight <u>Topography </u>and press <**OK**>
8. Key in Stn = 2 and Press <**OK**>
9. Enter instrument height in the <u>Theo ht</u> line
        If all of the items are reading <**Null**>, press <**I/O Clear**> to exit to main menu and reload job
10. Key in <u>Bs pt</u> = **1** and press <**OK**>
11. Turn the instrument and sight the last station (point 1)
12. Re-zero the azimuth on the last station

13. Double check the sighting and then press the <**Blue Button**> on the data collector to confirm back sight
14. Change <u>Cd</u> = **stn** or **hub**
15. Enter target height
16. Press <**OK**>
17. If a tolerance appears, accept. If over 1/100 off, turn off and start over at step 4
18. Continue your survey

Sokkia SDR33 – Offsets

Angle Offset:
This method takes two readings to get the
actual point. The first reading takes the
vertical angle and the distance to the point.
If you wanted to locate the center of a tree
this method would be acceptable. The prism
would be setup beside the tree along a circle
going through the tree with its center at the
instrument. The second shot would be on
the center of the tree without a prism for the
azimuth angle only. The data collector
combines both shots into one point.

Tree

Shot 2

Shot 1
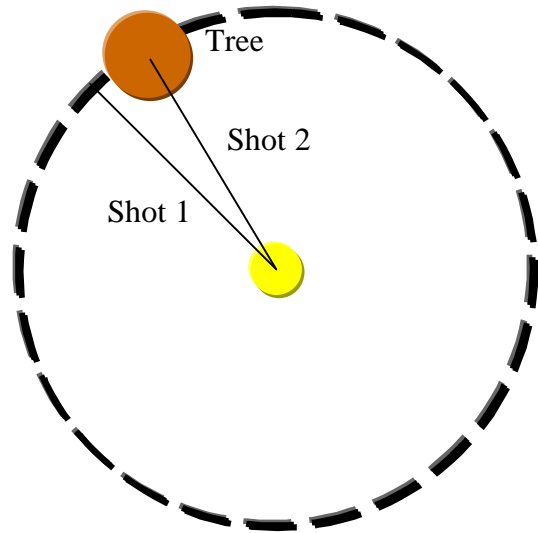
1. Sight the prism beside the point you want
2. From the Take Reading screen, press <**OFS**>
3. The SDR33 will display the results. Press <**OK**> to accept them.
4. You will be prompted for a second reading. Turn the instrument so it is sighted on
    the center of object you want.
5. Press the <**Blue Key**> to read the azimuth.
6. The SDR33 displays the results. Enter a field code in the Cd line
7. Press <**OK**> to accept. The SDR33 will return to the Take Reading screen.

Sokkia SDR33 – Downloading Jobs

1. Connect SDR33 to the computer
2. Open AutoCAD/Field Survey
3. In SurvCAD, open Cogo and Design Model/Menu (skip if running Field Survey)
4. Go to <u>Tools</u> menu
5. Select <u>Data Collectors</u>
6. In the dialog box that appears, select <**SDR/Sokkia/Lietz**…>
7. Turn on the SDR33
8. Press <**I/O Clear**> until you get back to main screen
9. Press <**F1**> for <u>Function</u> menu
10. Select <u>Communications</u> <? and ?> or <**C**><**C**>
11. Press Com <**F2**>
12. Double check to make sure the computer and the SDR33 are set at:
    Port = usually **COM1** on computer, **Top** on SDR33
    Baud = **1200**
    Parity = **None/Not Set**
13. When everything matches, hit <**OK**>
14. Press Send on data collector <**F4**>
15. Highlight Select Jobs and press <**Ente**r>
16. Scroll to job you want and use arrow keys <?　and ?　> to select **Yes** to select job for downloading
17. Press <**Download**> on the computer
18. Press <**OK**> on the data collector
19. Wait until SDR33 finishes, and press any key when prompted.
20. A dialog box should appear asking for a .crd file. Select <**New**>
21. Browse to saving location and type in name (landowner.crd)
22. Press <**Save**>
23. A dialog box will appear saying conversion complete, hit <**OK**>
24. This has downloaded the raw sokkia file to the directory you specified and then converted it into a crd point file.
25. Exit the data collector dialog box by pressing <**Exit**>

Sokkia SDR33 – Uploading Jobs

1. Connect SDR33 to the computer
2. Open AutoCAD/Field Survey
3. In SurvCAD, open Cogo and Design Model/Menu (skip if running Field Survey)
4. Open job file you want to upload (optional but makes it process easier)
5. Go to <u>Tools</u> menu
6. Select <u>Data Collectors</u>
7. In the dialog box that appears, select <**SDR/Sokkia/Lietz**…>
8. Press <**Upload (Send CRD file)**>
9. Select the file you want to upload in the dialog box and press **<Open>**
10. Check to make sure degrees, feet and NEZ coordinates are checked. Press **<Okay>**
11. Type in the point range to transfer. Type in ALL if all points are desired.
12. Turn on the SDR33
13. Press <**I/O Clear**> until you get back to main screen
14. Press <**F1**> for <u>Function</u> menu
15. Select <u>Communications</u> <? and ?> or <**C**><**C**>
16. Press Com <**F2**>
17. Double check to make sure the computer and the SDR33 are set at:
18. Port = usually **COM1** on computer, **Top** on SDR33
19. Baud = **1200**
20. Parity = **None/Not Set**
21. When everything matches, hit <**OK**>
22. Press RECV on data collector <**F5**>
23. Press <**Transfer**> on the computer
24. Wait until the computer finishes, and press any key when prompted.
    This has uploaded the file to the data collector and created a new job that has the
    same name as the CRD file that was uploaded.
25. Exit the data collector dialog box by pressing <**Exit**>

Sokkia SDR33 – Stakeouts

Stakeouts:
The rod person and instrument person work together to set the rod where the point is. A shot is taken on the rod and the data collector calculates the required distances and directions to move the rod. All directions are given for the person running the instrument. The data collector will give a left/right reading, and this is distance left or right along a circle around the instrument for the instrument person. The data collector will also give an in/out reading. This is the distance that the rod needs to move towards or away from the instrument.

These directions assume the job has been uploaded
1. Turn on Sokkia **<I/O Clear>**
2. Enter the Functions menu by pressing **<F1>**
3. Highlight Job by using <? and ?> and press <**Enter**> or **<OK>**
4. Select the uploaded job and press <**Enter**> or **<OK>**
5. Switch to the COGO menu <**F3**>
6. Highlight Set Out Coords and press <**Enter**> or **<OK>**
7. The Station Coordinate Screen is displayed. Always use <**Enter**> to move between fields. Set the station to whatever station you are setup at (1,2,3…) and the information for that point will be displayed. Enter the instrument height in the theo ht line and press **<OK>**
    If the Confirm Orientation screen appears instead of the Station Coordinate Screen, enter the station number in the Stn line and hit **<OK>**
8. Key in back sight point in the Bs pt = and press <**OK**>
9. Turn the instrument and sight the back sight
10. Zero the azimuth on the back sight

11. Double check the sighting and then press the <**Blue Button**> on the data collector to confirm back sight
12. The EDM tol error screen displays. If the error is less than 0.05, press <**F1**> to continue. If not press <**F5**> to take another shot.
13. The V.obs tol error screen displays. If the error is less than 0º 0' 30", press <**F1**> to continue. If not press <**F5**> to take another shot.
14. Look over the Confirm Orientation screen to double check and press <**OK**>
15. There are several ways to make a point available to stake out
    Press <**F1**> and type the point number in
    Press <**F3**> and type in the range of points
    Press <**F4**> and select Add all POS to list
    Press <**F2**> to erase the currently highlighted point
16. Once the point list is populated, highlight the desired point and press <**OK**>
17. Move the instrument to the angles shown on the data collector
18. Directed the rod person to where the instrument is sighted
19. Take a shot using the <**Blue Key**>
20. Enter the target height on the next screen and press <**OK**>
21. The data collector gives the left/right distance, the in/out distance and the amount of cut or fill needed. Move the rod and press the <**Blue Key**> to take another shot if required
22. When the shot is within an acceptable amount of error, press <**OK**> twice
23. The store point screen appears next and gives you a chance to save the point used for stakeout. Press <F1> for yes and <F5> for no
24. Select the next point and continue the process